IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the matter of: Cox   )
)
Serial No:)   Group Art Unit
)   Examiner:
)
Filed: Herewith   )
)
For: Testing an Image Display Device   )

ASSISTANT COMMISSIONER OF PATENTS
WASHINGTON, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Please preliminarily amend the above-referenced application as follows:

<u>In the Specification:</u>

Please replace paragraph beginning at line 5 of page 3, with the following rewritten

paragraph:

--The display device may have a back light operable to illuminate the display device,

and the method may include capturing the data corresponding to the first and second images

with the back light in use, although external illumination may be used for this purpose.--.

Express Mail No. 762542155US

In the Claims:

Claims 6, 11, 14, 17 and 20 have been amended as follows:

1   6.   (Amended) A method according to claim 5 wherein the elements are

2   configured in an array of rows and columns, and including combining the resultant data for

3   at least a part of an individual one of the rows or columns, and comparing the combined data

4   with a threshold to provide an indication of a malfunction in the device.

11.   (Amended) A method according to claim 1 wherein the display device is

mounted in an electronic apparatus with a back light operable to illuminate the display

device, including capturing the data corresponding to the first and second images with the

back light in use.

1   14.   (Amended) Apparatus according to claim 13 wherein the test pattern generator

2   is configured to energise and de-energise the elements individually to produce the data

3   corresponding to the first and second images.

1   17.   (Amended) Apparatus according to claim 12 wherein the processor is

2   configured to compare the image data for the first and second images to provide resultant

3   data corresponding to the functionality of the elements individually.

1   20.   (Amended) Apparatus according to claim 19 wherein the threshold is a

2   weighted combination of the mean and standard deviation of the values of the resultant data

3   included within the individual row or column.

In the Abstract:

Please replace paragraph beginning at line 1 of page 18, with the following rewritten

paragraph:

--Abstract of the Disclosure

A method of testing functionality of a LCD device (5) in a mobile telephone handset (MS1),

involves applying first and second test patterns to electrodes (17, 18) of the device (5) and

capturing image data corresponding to the display produced, using a camera (11). A

processor (12) compares the image data for the first and second test patterns, for each

display element of the device (5). The first and second patterns are arranged so that each

10   element is switched on and off. When the data from the first and second patterns is

compared, functional elements provide relatively high value resultant data (r), whereas non-

functional data do not. The resultant data (r) is summed by row and column and compared
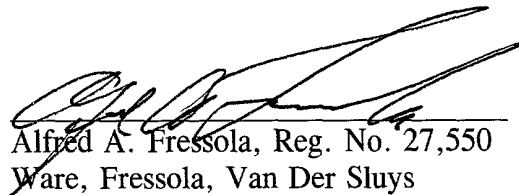
with a threshold to detect fault conditions.--.

Remarks

This preliminary amendment is filed for the purpose of placing the application into standard U.S. format. Claims 6, 11, 14, 17 and 20 have been amended. Consideration and allowance of the claims is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Respectfully submitted,

Date: _10/29/01_

Alfred A. Fressola, Reg. No. 27,550
Ware, Fressola, Van Der Sluys
    & Adolphson LLP
Bradford Green, Building Five
755 Main Street, PO Box 224
Monroe, CT 06468
(203) 261-1234

AAF/aks

<u>Version with Markings to Show Changes Made</u>

<u>In the Specification:</u>

Paragraph beginning at line 5 of page 3 has been amended as follows:

The display device may have a back light operable to illuminate the display device, and the method may include capturing the data corresponding to the first and second images with the back light in use, although external illumination may <u>be</u> used for this purpose.

<u>In the Claims:</u>

6.   (Amended) A method according to claim 5 wherein the elements are configured in an array of rows and columns, and including combining the resultant data for at least a part <u>of</u> an individual one of the rows or columns, and comparing the combined data with a threshold to provide an indication of a malfunction in the device.

1   11.   (Amended) A method according to [any preceding] claim <u>1</u> wherein the

2   display device is mounted in an electronic apparatus with a back light operable to illuminate

3   the display device, including capturing the data corresponding to the first and second images

4   with the back light in use.

1   14.   (Amended) Apparatus according to claim 13 wherein the test pattern generator

2   is configured to energise and de-energise the elements individually <u>to</u> produce the data

3   corresponding to the first and second images.

1   17.   (Amended) Apparatus according to claim [12wherein] 12 wherein the

2   processor is configured to compare the image data for the first and second images to provide

3   resultant data corresponding to the functionality of the elements individually.

1   20.   (Amended) Apparatus according to claim 19 wherein the threshold is a

2   weighted combination of the mean and standard deviation of the values of the resultant data

3   included within the individual row or column [malfunction data included within the individual

4   row or column].

In the Abstract:

        Paragraph beginning at line 1 of page 18 has been amended as follows:

Abstract of the Disclosure

[Testing an image display device]

A method of testing functionality of a LCD device[(5)] (5) in a mobile telephone handset

(MS1), involves applying first and second test patterns to electrodes (17, 18) of the device

5   (5) and capturing image data corresponding to the display produced, using a camera (11). A

processor (12) compares the image data for the first and second test patterns, for each

display element of the device (5). The first and second patterns are arranged so that each

element is switched on and off. When the data from the first and second patterns is

compared, functional elements provide relatively high value resultant data (r), whereas non-

functional data do not. The resultant data (r) is summed by row and column and compared with a threshold to detect fault conditions.